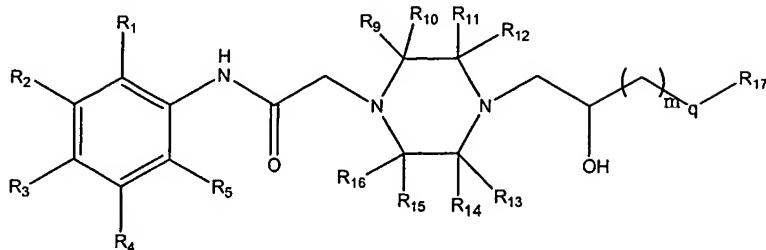


We claim:

1. A substituted piperazine compound of Formula I:



Formula I

wherein:

m is 1, 2, or 3;

q is -NH-, oxygen, or sulfur;

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>5</sub> are each independently selected from the group consisting of hydrogen, halo, CF<sub>3</sub>, OH, and C<sub>1-15</sub> straight or branched alkyl;

R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub>, R<sub>12</sub>, R<sub>13</sub>, R<sub>14</sub>, R<sub>15</sub> and R<sub>16</sub> are each independently selected from the group consisting of hydrogen and C<sub>1-4</sub> straight or branched alkyl, and

R<sub>17</sub> is heteroaryl that is optionally substituted with from 1 to 3 substituents selected from the group consisting of halo, C<sub>1-15</sub> straight or branched alkyl, aryl, cycloalkyl, and CF<sub>3</sub>, wherein the aryl substituents are optionally substituted with 1 substituent selected from the group consisting of methyl, halo and CF<sub>3</sub>.

2. The compound of claim 1, wherein m is 1 and q is oxygen;

3. The compound of claim 2, wherein:

R<sub>1</sub>, R<sub>3</sub>, R<sub>5</sub>, R<sub>11</sub>, R<sub>12</sub>, R<sub>14</sub> are hydrogen or methyl; and

R<sub>2</sub>, R<sub>4</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>13</sub>, R<sub>15</sub> and R<sub>16</sub> are hydrogen.

4. The compound of claim 3, wherein R<sub>1</sub> and R<sub>5</sub> are methyl, R<sub>3</sub>, R<sub>11</sub>, R<sub>12</sub>, and R<sub>14</sub> are hydrogen, and R<sub>17</sub> is 2-methylbenzothiazol-5-yl, namely (±)-N-(2,6-dimethylphenyl)-2-{4-[2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl] piperazinyl}acetamide, or an enantiomer or diastereoisomer thereof.

5. The compound of claim 3, wherein the enantiomer is 2-{4-[(2S)-2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]piperazinyl}-N-(2,6-dimethylphenyl)acetamide.
6. The compound of claim 3, wherein the enantiomer is 2-{4-[(2R)-2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]piperazinyl}-N-(2,6-dimethylphenyl)acetamide.
7. The compound of claim 3, wherein R<sub>1</sub> and R<sub>5</sub> are methyl, R<sub>3</sub>, R<sub>11</sub>, R<sub>12</sub>, and R<sub>14</sub> are hydrogen, and R<sub>17</sub> is 2-cyclohexylbenzothiazol-5-yl, namely 2-{4-[3-(2-cyclohexylbenzothiazol-5-yloxy)-2-hydroxypropyl]piperazinyl}-N-(2,6-dimethylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.
8. The compound of claim 3, wherein R<sub>1</sub> and R<sub>5</sub> are methyl, R<sub>3</sub>, R<sub>11</sub>, R<sub>12</sub>, and R<sub>14</sub> are hydrogen, and R<sub>17</sub> is 2-(3-trifluoromethylphenyl)-benzoxazol-5-yl, namely (±)-2-[4-(2-hydroxy-3-{2-[3-(trifluoromethyl) phenyl]-benzoxazol-5-yloxy} propyl) piperazinyl]-N-(2,6-dimethylphenyl) acetamide, or an enantiomer or diastereoisomer thereof.
9. The compound of claim 3, wherein R<sub>1</sub> and R<sub>5</sub> are methyl, R<sub>3</sub>, R<sub>11</sub>, R<sub>12</sub> and R<sub>14</sub> are hydrogen, and R<sub>17</sub> is 2-(2-chlorophenyl)benzoxazol-5-yl, namely (±)-2-(4-{3-[2-(2-chlorophenyl) benzoxazol-5-yloxy]-2-hydroxypropyl} piperazinyl)-N-(2,6-dimethylphenyl) acetamide, or an enantiomer or diastereoisomer thereof.
10. The compound of claim 3, wherein R<sub>1</sub> and R<sub>5</sub> are methyl, R<sub>3</sub>, R<sub>11</sub>, R<sub>12</sub> and R<sub>14</sub> are hydrogen, and R<sub>17</sub> is 2-propylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-propylbenzothiazol-5-yloxy)propyl] piperazinyl}-N-(2,6-dimethylphenyl) acetamide, or an enantiomer or diastereoisomer thereof.
11. The compound of claim 3, wherein R<sub>1</sub> and R<sub>5</sub> are methyl, R<sub>12</sub> and R<sub>14</sub> represent cis dimethyl, R<sub>3</sub> and R<sub>11</sub> are hydrogen, and R<sub>17</sub> is 2-methylbenzothiazol-5-yl, namely (±)-

N-(2,6-dimethylphenyl)-2-{4-[2-hydroxy-3-(2-methylbenzothiazole-5-yloxy) propyl]-3,5-cis dimethylpiperazinyl} acetamide, or an enantiomer or diastereoisomer thereof.

12. The compound of claim 11, wherein the diastereoisomer is N-(2,6-dimethylphenyl)-2-{4-[(2S)-2-hydroxy-3-(2-methylbenzothiazole-5-yloxy) propyl]-3,5-cis dimethylpiperazinyl} acetamide.
13. The compound of claim 11, wherein the diastereoisomer is N-(2,6-dimethylphenyl)-2-{4-[(2R)-2-hydroxy-3-(2-methylbenzothiazole-5-yloxy) propyl]-3,5-cis dimethylpiperazinyl} acetamide.
14. The compound of claim 3, wherein R<sub>1</sub>, R<sub>5</sub> and R<sub>12</sub> are methyl, R<sub>3</sub>, R<sub>11</sub>, and R<sub>14</sub> are hydrogen, and R<sub>17</sub> is 2-(3-fluorophenyl)benzoxazol-5-yl, namely ( $\pm$ )-2-(4-{3-[2-(3-fluorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}-3-methylpiperazinyl)-N-(2,6-dimethylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.
15. The compound of claim 14, wherein the diastereoisomer is 2-((3R)-4-((2S){3-[2-(3-fluorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}-3-methylpiperazinyl)-N-(2,6-dimethylphenyl)acetamide.
16. The compound of claim 14, wherein the diastereoisomer is 2-((3S)-4-((2S){3-[2-(3-fluorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}-3-methylpiperazinyl)-N-(2,6-dimethylphenyl)acetamide.
17. The compound of claim 14, wherein the diastereoisomer is 2-((3R)-4-((2R){3-[2-(3-fluorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}-3-methylpiperazinyl)-N-(2,6-dimethylphenyl)acetamide.

18. The compound of claim 14, wherein the diastereoisomer is 2-((3S)-4-{(2R){3-[2-(3-fluorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}-3-methylpiperazinyl)-N-(2,6-dimethylphenyl)acetamide.

19. The compound of claim 3, wherein R<sub>1</sub>, R<sub>5</sub> and R<sub>12</sub> are methyl, R<sub>3</sub>, R<sub>11</sub>, and R<sub>14</sub> are hydrogen, and R<sub>17</sub> is 2-methylbenzothiazol-6-yl, namely (±)-2-{(3R)-4-[(2S)-2-hydroxy-3-(2-methylbenzothiazol-6-yloxy)propyl]-3-methylpiperazinyl}-N-(2,6-dimethylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

20. The compound of claim 3, wherein R<sub>1</sub>, R<sub>5</sub> and R<sub>12</sub> are methyl, R<sub>3</sub>, R<sub>11</sub>, and R<sub>14</sub> are hydrogen, and R<sub>17</sub> is 2-(2-chlorophenyl)benzoxazol-5-yl, namely (±)-2-(4-{3-[2-(2-chlorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}-3-methylpiperazinyl)-N-(2,6-dimethylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

21. The compound of claim 3, wherein R<sub>1</sub>, R<sub>5</sub> and R<sub>12</sub> are methyl, R<sub>3</sub>, R<sub>11</sub>, and R<sub>14</sub> are hydrogen, and R<sub>17</sub> is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]-methylpiperazinyl}-N-(2,6-dimethylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

22. The compound of claim 3, wherein R<sub>1</sub>, R<sub>5</sub>, R<sub>11</sub> and, R<sub>12</sub> are methyl, R<sub>3</sub> and R<sub>14</sub> are hydrogen, and R<sub>17</sub> is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]-3,3-dimethylpiperazinyl}-N-(2,6-dimethylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

23. The compound of claim 3, wherein R<sub>3</sub> and R<sub>12</sub> are methyl, R<sub>1</sub>, R<sub>5</sub>, R<sub>11</sub>, and R<sub>14</sub> are hydrogen, and R<sub>17</sub> is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]-3-methylpiperazinyl}-N-(4-methylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

24. The compound of claim 2, wherein R<sub>3</sub> is methyl, R<sub>1</sub>, R<sub>5</sub>, R<sub>11</sub>, R<sub>12</sub> and R<sub>14</sub> are hydrogen, and R<sub>17</sub> is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-

methylbenzothiazol-5-yloxy)propyl]piperazinyl}-N-(4-methylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

25. The compound of claim 2, wherein:

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, and R<sub>4</sub> are hydrogen, cyano, trifluoromethyl, or phenyl;

R<sub>5</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub>, R<sub>13</sub>, R<sub>14</sub>, R<sub>15</sub> and R<sub>16</sub> are hydrogen; and

R<sub>12</sub> is hydrogen or methyl.

26. The compound of claim 25, wherein R<sub>1</sub>, R<sub>2</sub> and R<sub>4</sub> are hydrogen, R<sub>3</sub> is trifluoromethyl, R<sub>12</sub> is methyl, and R<sub>17</sub> is 2-methylbenzothiazol-5-yl, namely ( $\pm$ )-2-{4-[2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]-3-methylpiperazinyl}-N-[4-(trifluoromethyl)phenyl]acetamide, or an enantiomer or diastereoisomer thereof.

27. The compound of claim 25, wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>4</sub> and R<sub>12</sub> are hydrogen, R<sub>3</sub> is trifluoromethyl, and R<sub>17</sub> is 2-(4-chlorophenyl)benzoxazol-5-yl, namely, ( $\pm$ )-2-(4-{3-[2-(4-chlorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl}piperazinyl)-N-[4-(trifluoromethyl)phenyl]acetamide, or an enantiomer or diastereoisomer thereof.

28. The compound of claim 25, wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>4</sub> and R<sub>12</sub> are hydrogen, R<sub>3</sub> is cyano, and R<sub>17</sub> is 2-methylbenzothiazol-5-yl, namely ( $\pm$ )-2-{4-[(2S)-2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]piperazinyl}-N-(4-cyanophenyl)acetamide, or an enantiomer or diastereoisomer thereof.

29. The compound of claim 25, wherein R<sub>1</sub> is phenyl, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>12</sub> are hydrogen, and R<sub>17</sub> is 2-phenylbenzoxazol-5-yl, namely ( $\pm$ )-2-{4-[(2S)-2-hydroxy-3-(2-phenylbenzoxazol-5-yloxy)propyl]piperazinyl}-N-(2-phenylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

30. The compound of claim 25, wherein R<sub>2</sub> is phenyl, R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>12</sub> are hydrogen, and R<sub>17</sub> is 2-methylbenzothiazol-5-yl, namely ( $\pm$ )-2-{4-[2-hydroxy-3-(2-

methylbenzothiazole-5-yloxy)propyl]piperazinyl}-N-(3-phenylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

31. The compound of claim 25, wherein R<sub>2</sub> is phenyl, R<sub>1</sub>, R<sub>2</sub>, R<sub>4</sub> and R<sub>12</sub> are hydrogen, and R<sub>17</sub> is 2-phenylbenzoxazol-5-yl, namely (±)-2-{4-[(2S)-2-hydroxy-3-(2-phenylbenzoxazol-5-yloxy)propyl]piperazinyl}-N-(3-phenylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

32. The compound of claim 25, wherein R<sub>3</sub> is phenyl, R<sub>1</sub>, R<sub>2</sub>, R<sub>4</sub> and R<sub>12</sub> are hydrogen, and R<sub>17</sub> is 2-phenylbenzoxazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-phenylbenzoxazol-5-yloxy)propyl]piperazinyl}-N-(4-phenylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

33. The compound of claim 25, wherein R<sub>3</sub> is phenyl, R<sub>1</sub>, R<sub>2</sub>, R<sub>4</sub> and R<sub>12</sub> are hydrogen, and R<sub>17</sub> is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]piperazinyl}-N-(4-phenylphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

34. The compound of claim 2, wherein:

R<sub>1</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub>, R<sub>12</sub>, R<sub>13</sub>, R<sub>14</sub>, R<sub>15</sub> and R<sub>16</sub> are hydrogen; and  
R<sub>2</sub> and R<sub>3</sub> are hydrogen or phenoxy optionally substituted with halo.

35. The compound of claim 34, wherein R<sub>3</sub> is phenoxy, R<sub>2</sub> is hydrogen, and R<sub>17</sub> is 2-methylbenzothiazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-methylbenzothiazol-yloxy)propyl]piperazinyl}-N-(4-phenoxyphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

36. The compound of claim 34, wherein R<sub>3</sub> is phenoxy, R<sub>2</sub> is hydrogen, and R<sub>17</sub> is 2-phenylbenzoxazol-5-yl, namely (±)-2-{4-[2-hydroxy-3-(2-phenylbenzoxazol-5-

yloxy)propyl]piperazinyl}-N-(4-phenoxyphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

37. The compound of claim 34, wherein R<sub>3</sub> is 4-chlorophenoxy, R<sub>2</sub> is hydrogen, and R<sub>17</sub> is 2- methylbenzothiazol-5-yl, namely ( $\pm$ )-2-{4-[2-hydroxy-3-(2-methylbenzothiazole-5-yloxy)propyl]piperazinyl}-N-[4-(4-chlorophenoxy)phenyl]acetamide, or an enantiomer or diastereoisomer thereof.

38. The compound of claim 34, wherein R<sub>2</sub> is phenoxy, R<sub>3</sub> is hydrogen, and R<sub>17</sub> is 2-phenylbenzoxazol-5-yl, namely ( $\pm$ )-2-{4-[(2S)-2-hydroxy-3-(2-phenylbenzoxazol-5-yloxy)propyl]piperazinyl}-N-(3-phenoxyphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

39. The compound of claim 34, wherein R<sub>2</sub> is phenoxy, R<sub>3</sub> is hydrogen, and R<sub>17</sub> is 2-methylbenzothiazol-5-yl, namely ( $\pm$ )-2-{4-[(2S)-2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]piperazinyl}-N-(3-phenoxyphenyl)acetamide, or an enantiomer or diastereoisomer thereof.

40. The compound of claim 2, wherein:

R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>11</sub>, R<sub>12</sub>, R<sub>13</sub>, R<sub>14</sub>, R<sub>15</sub> and R<sub>16</sub> are hydrogen;

R<sub>2</sub> is hydroxymethyl; and

R<sub>5</sub> is methyl.

41. The compound of claim 40, wherein R<sub>17</sub> is 4-chlorophenylbenzoxazol-5-yl, namely ( $\pm$ )-2-(4-[(2S)-3-[2-(4-chlorophenyl)benzoxazol-5-yloxy]-2-hydroxypropyl]piperazinyl)-N-[2-(hydroxymethyl)-6-methylphenyl]acetamide, or an enantiomer or diastereoisomer thereof

42. The compound of claim 40, wherein R<sub>17</sub> is 2- methylbenzothiazol-5-yl, namely (±)-2-{4-[(2S)-2-hydroxy-3-(2-methylbenzothiazol-5-yloxy)propyl]piperazinyl}-N-[2-(hydroxymethyl)-6-methylphenyl]acetamide, or an enantiomer or diastereoisomer thereof.

43. A method of treating a disease state in a mammal that is alleviable by treatment with a partial fatty acid oxidation inhibitor, comprising administering to a mammal in need thereof a therapeutically effective dose of a compound of claim 1.

44. The method of claim 43, wherein the disease state is damage to skeletal muscles resulting from trauma or shock, or a cardiovascular disease.

45. The method of claim 43, wherein the cardiovascular disease is atrial arrhythmia, intermittent claudication, ventricular arrhythmia, Prinzmetal's (variant) angina, stable angina, exercise induced angina, congestive heart disease, or myocardial infarction.

46. The method of claim 43, wherein the disease state is diabetes.

47. A pharmaceutical composition comprising at least one pharmaceutically acceptable excipient and a therapeutically effective amount of a compound of claim 1.